TECHNOLOGY FACT SHEET

MSC-24149-1 Improved Method for Folding, Assembling, and Weight Relief of an Inflatable Shell (USPN 8,122,646)

This technology is an improved method of designing complexly shaped inflatable shells to be assembled from gores. The method addresses problems associated with the assembly, folding, transport, and deployment of inflatable shells that may comprise multiple layers and have complex shapes that can include such doubly curved surfaces as toroids and spheres. One particularly difficult problem is that of mathematically defining fold lines on a gore pattern in a double- curvature region. It is a common practice to design an inflatable shell to be assembled in the deployed configuration, without regard for the need to fold it into compact form. Typically, the result has been that folding has been a difficult, time-consuming process resulting in a poor stowed configuration. With this method, one chooses the sizes and shapes of the gores and the fold lines, in conjunction with the sequence of incorporation of the gores, to enable assembly of the shell in the stowed configuration, without interference between layers.

Benefits

- Simplified assembly
- Easier fabrication

Application

- Automobile Air Bags
- Habitats
- Hot Air Balloons
- Tents
- Toys

Patent

JSC has received patent protection for this technology (USPN 8,122,646).

Licensing and Partnering Opportunity

This technology is being made available through JSC's Technology Transfer and Commercialization Office, which seeks to transfer technology into and out of NASA to benefit the space program and U.S. industry. NASA invites companies to consider licensing this technology for commercial applications.

Contact Information

If you would like more information about this technology or about NASA's technology transfer program, please contact:

Technology Transfer and Commercialization Office
NASA's Johnson Space Center
Phone: 281-483-3809
E-mail: jsc-techtran@mail.nasa.gov